

ABSTRACT OF THE DISCLOSURE

Method And Apparatus For Forming Billets From Metallic Chip Scraps

The present invention relates generally to metallic chips recycling, particularly, titanium alloys metal chips, and more particularly to said chips to form billets that can then be used for producing consumable electrodes for obtaining secondary casting alloys, in blacksmith's work for obtaining forgings, extruded semi-finished products and the like.

After the chips are crushed and cleaned, the chips are pressed into cylindrically shaped briquettes with relative density of 0.6, and placed into capsules. The capsules are heated and placed into a pressing rig apparatus. The pressing rig repetitively applies axial force to the capsule, resulting in briquettes having relative density of at least 0.95. In a preferred embodiment, the pressing rig is pre-heated to a temperature of at least 0.2 of the heated capsule temperature to avoid excessive cooling of the capsule during the hot deformation operation. In a preferred , the deformation effort is applied all over the surface of one of butt-ends of the capsule, and from the opposite butt-end of the capsule – over the surface the diameter of which is less than size.

The pressing rig apparatus comprises a basis, a container, a mould, a compression ram, a principal press-washer and an autonomous press-washer. In a preferred embodiment, the diameter of one or both of the press-washers are less than the capsule diameter by two thicknesses of the capsule cowling, and wherein the press-washers form one or more chambers with the mould to receive the shed cowling during the hot deformation process.